

VU Research Portal

From Gender Variance to Gender Dysphoria:

Steensma, T.D.

2013

document version

Publisher's PDF, also known as Version of record

[Link to publication in VU Research Portal](#)

citation for published version (APA)

Steensma, T. D. (2013). *From Gender Variance to Gender Dysphoria: Psychosexual development of gender atypical children and adolescents*. [PhD-Thesis - Research and graduation internal, Vrije Universiteit Amsterdam].

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

E-mail address:

vuresearchportal.ub@vu.nl

Chapter 6

Factors Associated with Desistence and Persistence of Childhood Gender Dysphoria: A Quantitative Follow-up Study

Thomas D. Steensma, M.Sc.^{1,2}
Jenifer K. McGuire, Ph.D, MPH. ³
Baudewijntje P. C. Kreukels, Ph.D. ^{1,2}
Anneke J. Beekman, B.Sc. ^{1,2}
Peggy T. Cohen-Kettenis, Ph.D.^{1,2}

¹ Center of Expertise on Gender Dysphoria,
vU University Medical Center, Amsterdam, the Netherlands

² Department of Medical Psychology,
vU University Medical Center, Amsterdam, the Netherlands

³ Washington State University, Pullman,
The United States of America

Submitted

Abstract

The aim of this study was to examine the factors associated with the persistence and desistence of childhood gender dysphoria, and assess the current feelings of gender dysphoria and sexual orientation in adolescence. In a sample of 127 adolescents (79 boys, 48 girls), who were referred for gender dysphoria in childhood (< 12 years of age) and followed up in adolescence, we examined childhood differences among persisters and desisters in demographics, development, childhood psychological functioning, the quality of peer relations and childhood gender dysphoria, and adolescent reports of gender dysphoria, body image and sexual orientation. We examined contributions of childhood factors on the probability of persistence of gender dysphoria into adolescence. We found a link between the intensity of gender dysphoria in childhood and persistence of gender dysphoria, as well as a higher probability of persistence among natal girls. Psychological functioning and the quality of peer relations did not predict the persistence of childhood gender dysphoria. Formerly non-significant (age at childhood assessment) and unstudied factors (a cognitive and/or affective cross-gender identification and a social role transition) were associated with the persistence of childhood gender dysphoria, and vary among natal boys and girls. In conclusion, intensity of early gender dysphoria appears to be a very important predictor of persistence of gender dysphoria. Clinical recommendations for the support of gender dysphoric children may need to be developed independently for natal boys and for girls, as the presentation of gender dysphoric boys and girls is different and different factors are predictive for the persistence of gender dysphoria.

Introduction

Many children who experience *gender dysphoria*, a sense of discomfort from incongruence between their gender identity and assigned sex, will not continue to experience dysphoria into adolescence and adulthood. However, a substantial minority (2-27% across studies) will continue to report gender dysphoria and may seek services for gender reassignment in adolescence or adulthood. To date, the prospective follow-up studies on gender dysphoric children, for whom the majority would meet the DSM-IV-TR diagnostic criteria for Gender Identity Disorder (GID)(American Psychiatric Association, 2000), collectively reported on the outcome of 246 children and showed that for 207 of them (84.2%) the gender dysphoric feelings remitted after puberty (Bakwin 1968; Davenport 1986; Drummond et al. 2008; Green 1987;

Kosky 1987; Lebovitz 1972; Money and Ruso 1979; Wallien and Cohen-Kettenis 2008; Zucker and Bradley 1995; Zuger 1984). These studies were conducted across several decades during which the opportunity and social acceptance for gender reassignment during adolescence has increased dramatically. The current study focuses on children in a context where gender reassignment is available, generally socially accepted and covered by health insurance.

Knowledge of the factors associated with persistence and desistence of childhood gender dysphoria is limited. Prospectively, one study by Wallien and Cohen-Kettenis (2008), reporting on the outcome in adolescence and early adulthood for 77 clinically referred gender dysphoric children (21 persisters and 56 desisters), found that the percentage of a complete childhood GID diagnosis was higher for children with persisting gender dysphoria than for children in which the gender dysphoria desisted. Furthermore, compared to the desisters, per self and parent report, the persisters showed more cross-gender behavior and a higher intensity of gender dysphoria in childhood. In line with these findings, Drummond et al. (2008) showed that girls with persisting gender dysphoria recalled significantly more cross-gender behavior and gender dysphoria during childhood than the girls classified as having desisting gender dysphoria. More recently, another study by Singh (2012) on 139 gender dysphoric natal boys confirmed the link between the intensity of childhood gender dysphoria and adolescent and adult persistence of gender dysphoria. Except for this finding, Singh also found that desistence of gender dysphoria was associated with a higher social class, however other possible indicators, such as psychological functioning or the quality of peer relations did not show to be different between the persisters and desisters in childhood.

Indications of more subtle childhood differences between persisters and desisters were reported in a qualitative follow-up study on 25 gender dysphoric children (14 persisters and 11 desisters) by Steensma et al. (2011). They found that both the persisters and desisters reported gender dysphoric feelings and cross-gender identification from childhood, but their underlying motives appeared to be different. In their report, the persisters explicitly indicated that they felt they *were* the “other” sex. The desisters however indicated that they identified as a girlish boy or boyish girl who only *wished* they were the “other” sex. In addition to this, and with regard to bodily discomfort reported by the persisters as well as by the desisters, the persisters indicated that their discomfort originated from the felt incongruence between their bodies and their gender identity, whereas the desisters indicated that the discomfort was more likely to be a result of the *wish* for another body in order to fulfill the desired social gender role. Since the informa-

tion from the adolescents was based on subjective recollection, and therefore susceptible to biased recall (McIntosh 1968; Rosch 1980), these findings should be interpreted with caution. Taken together, the prior research suggests that persistence and desistence of childhood gender dysphoria is most closely linked to the intensity of the gender dysphoria in childhood, the amount of cross-gendered behavior, and possible differences in motives or cognitive constructions of the dysphoria (e.g. I am the other gender, born in the wrong body vs. I wish to be the other gender).

Most long term studies of gender dysphoria also examine adolescent or adult sexual orientation and find an association between the presence of childhood gender dysphoria and a heightened report of a sexual orientation directed towards the same natal sex or to both sexes (Bakwin 1968; Davenport 1986; Drummond et al. 2008; Green 1987; Kosky 1987; Lebovitz 1972; Money and Ruso 1979; Wallien and Cohen-Kettenis 2008; Zucker and Bradley 1995; Zuger 1984). In short, childhood gender dysphoria may predict a later desire for gender reassignment in some, and an increased report of same sex attractions only in others. The rest of the children report desistence of gender dysphoria and predominately opposite sex attractions. The proportions of children on each of these three developmental pathways have not been fully established.

The present study examined a broad range of possible factors associated with persistence and desistence of childhood gender dysphoria by comparing a number of childhood variables (e.g. demographic background information, developmental background, intensity of gender dysphoria, cross-gender behavior, psychological functioning, the quality of peer relations) between adolescent persisters and desisters who were clinically-referred to our gender identity service in childhood. In addition to this, we examined psychosexual outcomes and the intensity of gender dysphoria at the time of follow-up in adolescence.

The purpose of this study was to simultaneously examine multiple predictors of persistence and desistence of childhood gender dysphoria in both boys and girls. This information is important in clinical practice to better understand the probable range of outcomes for children who present with gender dysphoria. We expect that intensity of gender dysphoria during childhood will be the strongest predictor of adolescent requests for gender reassignment. Although one study reported no link between psychological functioning and the quality of peer relations and persistence, we will further test those associations.

Method

Participants and Procedure

The study sample consisted of 127 adolescents (79 boys, 48 girls), who were referred and diagnosed in childhood (< 12 years of age) at the Center of Expertise on Gender Dysphoria at the vU University Medical Center in Amsterdam, the Netherlands. This exclusive sample differs from the previous persistence study from the Amsterdam clinic (Wallien and Cohen-Kettenis 2008). The diagnostic procedure in childhood consisted of several individual and combined sessions with the child and the parents, including an extensive psychodiagnostic assessment of the child. The aim of the diagnostic phase is to determine whether the criteria for a Gender Identity Disorder (GID) (American Psychiatric Association 2000) are met and to evaluate the cognitive, psychological and psychosocial functioning of the child as well as the functioning of the family, in order to give parents pedagogical advice or, if indicated, advice to treat co-existing problems (e.g. de Vries and Cohen-Kettenis 2012).

Between 2000 and 2008, 225 children (144 boys, 81 girls) were consecutively referred to the clinic. From this sample, 127 adolescents were selected who were 15 years of age or older during the 4 year period of follow-up between 2008 and 2012. Out of these adolescents, 47 adolescents (37%, 23 boys, 24 girls) were identified as *persisters*. They reapplied for treatment to the clinic in adolescence, requested medical treatment, were subsequently diagnosed again with GID, and considered eligible for treatment (puberty suppression with GnRH analogues first, cross-sex hormone treatment after the age of 16, and surgery after 18 (for details on treatment see de Vries and Cohen-Kettenis 2012; Cohen-Kettenis et al. 2008). As the Amsterdam clinic is the only specialized gender identity service in the Netherlands where psychological and medical treatment is offered to GD adolescents, we assumed that for the 80 adolescents (56 boys, 24 girls), who did not return to the clinic, that their gender dysphoric feelings had desisted, and that they no longer had a desire for gender reassignment (for the demographic characteristics of the sample as a function of persistence or desistence and natal sex, see Table 1).

For the purpose of the study, information on demographic background, the degree of psychological functioning and the intensity of gender dysphoria / cross-gender identification in childhood was retrieved from the medical charts for all adolescents. At the time of follow-up, and with approval of the Ethics Committee of the vU University Medical Center, the adolescents were first contacted by telephone and asked to participate in the study. Upon agreement, a letter with further information on the study, an informed

Table 1 (part 1) Demographic characteristics as a function of desistance and persistence and sex

	Persistence (n=47)		Desistence (n=80)		Responders (n=46)		Parent (n=6)		Non-responders (n=28)	
	boys (n=23)	girls (n=24)	boys (n=56)	girls (n=24)	boys (n=31)	girls (n=15)	boys (n=5)	girls (n=1)	boys (n=20)	girls (n=8)
<i>Age in childhood</i>										
M	9.33	9.83	8.70	9.35	8.84	9.23	8.92	10.48	8.43	9.44
SD	1.49	1.36	1.52	1.44	1.41	1.54	1.43	--	1.73	1.34
Range	7 - 12	6 - 12	6 - 12	6 - 12	6 - 12	6 - 12	7 - 12	--	6 - 12	7 - 12
<i>Age at follow-up</i>										
M	16.12	16.33	16.10	16.07	16.05	16.03	15.92	16.32	16.21	16.10
SD	.91	1.25	.92	.82	.93	.80	.74	--	.97	.95
Range	15 - 18	15 - 19	15 - 19	15 - 18	15 - 18	15 - 18	15 - 17	--	15 - 19	15 - 18
<i>Interval (in years)</i>										
M	6.80	6.50	7.39	6.72	7.21	6.81	6.99	5.84	7.78	6.66
SD	1.62	1.42	1.29	1.51	1.18	1.67	1.87	--	1.29	1.33
<i>Childhood diagnosis (%)</i>										
GID	91.3	95.8	39.3	58.3	48.4	66.7	0.0	0.0	35.0	50.0
Subthreshold	8.7	4.2	60.7	41.7	51.6	33.3	100	100.0	65.0	50.0
<i>Social Role (%)</i>										
No transitioning	56.5	41.7	96.4	54.2	93.5	53.3	100	0.0	100	62.5
Partial transitioning	30.4	54.2	3.6	45.8	6.5	46.7	0.0	100	0.0	37.5
Complete transitioning	13.0	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Parent's MS (%)</i>										
Both	82.6	79.2	69.6	54.2	80.6	60.0	80.0	0.0	50.0	50.0
Other ^a	17.4	20.8	30.4	45.8	19.4	40.0	20.0	100	50.0	50.0
<i>SES (%)^b</i>										
I High	17.4	13.0	26.4	29.2	30.0	26.7	0.0	0.0	27.8	37.5
II Med	56.5	56.5	39.6	54.2	33.3	53.3	80.0	100	38.9	50.0
III Low	26.1	30.4	34.0	16.7	36.7	20.0	20.0	0.0	33.3	12.5

^a For parents' socio economic class, see text for classification

^b For marital status, the category "Other" includes the following family constellations: single parent, separated, divorced, widowed, reconstituted (e.g. mother and stepfather), living in a group home, etc.

Table 1 (part 2) Demographic characteristics as a function of desistance and persistence and sex

	Persistence (n=47)		Desistance (n=80)		Responders (n=46)		Parent (n=6)		Non-responders (n=28)	
	boys (n=23)	girls (n=24)	boys (n=56)	girls (n=24)	boys (n=31)	girls (n=15)	boys (n=5)	girls (n=1)	boys (n=20)	girls (n=8)
<i>Birth weight (grams)</i>										
M	3671.26	2892.39	3152.02	3442.14	3191.11	3309.62	3394.00	--	3038.75	3657.50
SD	751.23	636.07	907.85	573.29	710.16	618.25	1625.40	--	966.90	445.16
N	22	23	52	21	27	13	5	--	20	8
<i>Pregnancy duration (weeks)</i>										
M	40.0	38.61	38.59	39.86	38.43	39.64	37.75	--	39.00	40.25
SD	1.75	2.39	2.77	1.28	3.16	1.39	2.22	--	2.29	1.04
N	22	23	51	22	28	14	4	--	19	8
<i>Breast feeding (weeks)</i>										
M	9.29	8.64	9.64	8.90	10.08	9.50	11.00	--	8.65	9.14
SD	13.33	14.75	12.96	11.81	11.73	12.33	11.14	--	15.57	12.21
N	21	22	47	20	26	12	4	--	17	7
<i>Full-scale IQ</i>										
M	103.30	99.42	101.96	100.55	100.10	102.50	107.20	--	103.61	97.13
SD	12.51	14.34	12.81	15.93	13.07	14.14	9.78	--	13.09	19.22
<i>VIQ</i>										
M	103.83	97.71	102.53	100.50	99.07	102.36	110.40	--	105.72	97.25
SD	15.79	18.86	13.29	13.72	12.14	9.83	7.41	--	14.96	19.14
<i>PIQ</i>										
M	100.83	97.13	100.43	100.59	99.54	102.21	102.60	--	101.22	97.75
SD	13.43	15.98	12.80	17.35	14.29	18.61	11.52	--	11.07	15.67

consent form, and a set of questionnaires, assessing information on current gender dysphoric feelings, body image, and sexual orientation was mailed. All 47 persisters agreed to participate in the study and completed the questionnaires. Out of the 80 desisters, 46 adolescents sent back the questionnaires (57.5%) and 6 (7.5%) adolescents refused to participate in the study, but allowed their parents to fill out the parent questionnaires. Twenty-eight adolescents were classified as non-responders: 12 (15%) of them agreed on the phone but did not send back the questionnaires despite several follow-up calls, another 12 (15.0%) were untraceable with neither a telephone number nor a valid domestic address. In 4 cases (5.0%) both the adolescents and the parents indicated that the gender dysphoric feelings from the past remitted but refused to participate in the study. For all adolescents consent to use the childhood data was obtained during childhood.

Measures

Childhood

Demographics

Twelve demographic and developmental measures were coded in childhood: (1) Sex of the patient, (2) Age at assessment, (3) Diagnosis, (4) Social role transition, (5) Parents' marital status, (6) Parents' social class, (7) Birth weight, (8) Pregnancy duration, (9) Breast feeding history, (10) Full-Scale IQ, (11) Verbal IQ, and (12) Performance IQ.

The diagnosis, made at the end of the diagnostic procedure by either a clinical child psychologist or a child psychiatrist, was categorized as (1) children who met all criteria for a DSM-IV-TR GID diagnosis, or (2) children who did not meet all criteria and were subthreshold for a GID diagnosis. Social role transition was determined through one question from a development questionnaire that was filled out by one of the parents around the time of referral. Parents were asked to indicate whether their child had already socially transitioned to the preferred gender role on a 3-point scale; (1) No, (2) Yes, but not in all situations, or (3) Yes, completely. This information was further verified by an open question to the parents where they could give additional remarks on hairstyle, clothing and in which pronoun the child was addressed. For our analyses the 3-point scale was recoded into a dichotomous scale where (0) indicated no transitioning (category 1) and (1) indicated some transitioning (category 2 and 3). Marital status of the parents was categorized as either living with both biological parents (or with adoptive parents from birth) or all other categories (e.g. single parent, separated, divorced, widowed, reconstituted, living in a group home, etc.). To deter-

mine parents' social class a 5-point scale was used where 1 = university degree and 5 = grade 8 or less, and recoded into an education rating between 1.0-2.0 = 1 (High), 2.5-3.5 = 2 (Medium), and 4.0-5.0 = 3 (Low). The birth weight of the children (in grams), and pregnancy duration and whether the children were breast fed (both measured in weeks), was retrieved from the same development questionnaire as mentioned above. Cognitive functioning, by means of Full-Scale IQ, Verbal IQ and Performance IQ was assessed using the Dutch versions of the Wechsler Preschool and Primary Scale of Intelligence (Wechsler 1997) or the Wechsler Intelligence Scale for Children (Wechsler 1991; 2005).

Gender identity and gender dysphoria

The *Gender Identity Interview for Children* (GIIC) (Zucker et al. 1993a) is a semi-structured 12-item child informant instrument that measures two factors: 'Cognitive gender confusion' and 'Affective gender confusion'. 'Cognitive gender confusion' is assessed by four questions asking whether the child identifies as a boy or a girl, while 'Affective gender confusion' is assessed through 8 questions focusing on the affective aspect of gender identity (e.g. Do you think it is better to be a boy or a girl? Are there any things that you don't like about being a boy). Questions are scored on a three-point scale, ranging from 0-2 with higher scores reflecting more gender-atypical responses. The GIIC has been validated in a Dutch sample (Wallien et al. 2009).

The *Gender Identity Questionnaire* (GIQ) is a 14-item parent-report questionnaire representing one-factor indicated by the mean score on a five point scale (Johnson et al. 2004), and has been cross-nationally validated with Canadian and Dutch participants (Cohen-Kettenis et al. 2006). The focus of items is on cross gendered behaviors, with higher scores coded in this study to represent a greater frequency of cross-gendered behaviors.

Psychological functioning and the quality of peer relations

Psychological functioning was assessed through parental report, by the Dutch version of the *Child Behavior Checklist/ 4-18* (CBCL) (Achenbach and Edelbrock 1983; Verhulst et al. 1996), and through Teacher report, by the Dutch version of the *Teacher's Report Form* (TRF) (Achenbach and Edelbrock 1986; Verhulst et al. 1997). This study used: (1) the mean Total problem score, i.e., the sum of all items rated 1 or 2; (2) the mean Internalizing behavior score; and (3) the mean Externalizing behavior score.

On the CBCL, there are two items related to gender identity: Item 5 ("Behaves like opposite sex") and item 110 ("Wishes to be of opposite sex"). These gender related items were analyzed as separate predictors based on

the findings from Cohen-Kettenis et al. (2003), and were not included in the three above mentioned scales of the CBCL and TRF.

We created a Peer Relations Scale from three items: “Doesn’t get along with other kids” (Item 25), “Gets teased a lot” (Item 38), and “Not liked by other kids” (Item 48), based on findings from Zucker et al. (1997).

Adolescence

Gender identity, gender dysphoria and body image

The *Gender Identity Interview for Adolescents and Adults* (GIAA) (Deogracias et al. 2007; Singh et al. 2010), is a semi-structured 27-item adolescent and adult informant instrument with one factor. The items measure gender identity problems and gender dysphoria for the past 12 months (e.g. In the past 12 months, have you felt uncertain about your gender, that is, feeling somewhere in between a woman and a man?). Lower scores on the GIAA reflect more gender atypical responses.

The *Utrecht Gender Dysphoria Scale* (UGDS) (Doorn et al. 1996; Steensma et al. 2012b) is a 12 item questionnaire with one factor. The items measure the intensity of gender dysphoria (e.g. I continuously want to be treated like a boy/man, I feel unhappy because I have a male body). Higher scores on the UGDS indicate more gender dysphoria. There are separate versions of the UGDS for males (UGDS-M) and females (UGDS-F).

The Dutch version of the *Body Image Scale* (BIS) (Lindgren and Pauly 1975; Kuiper 1991) is a 30 item questionnaire that measures body satisfaction and consists of three scales: Primary sex characteristics (e.g. genitals), secondary sex characteristics (e.g. breasts, body hair), and neutral body characteristics (e.g. hands, legs). Higher scores for the three scales indicate a greater dissatisfaction.

Sexual orientation

We examined four indicators of sexual orientation: “To whom do you feel attracted?” (sexual attraction), “About whom do you fantasize sexually?” (sexual fantasy), “With whom have you kissed?” (sexual behavior), and “How do you identify yourself?” (sexual identity) (Wallien and Cohen-Kettenis 2008). The sexual behavior domain was assessed by asking about kissing since we expected that many of the 15 year old adolescents would not have had sexual intercourse. The questions were rated on a seven-point scale ranging from exclusively heterosexual (0) to exclusively homosexual (6) (Kinsey et al. 1948). Subsequently, according to their scores, the adolescents were classified in three sexual orientation categories: (1) attracted to other sex (Kinsey rating 0-1), (2) attracted to both sexes (Kinsey rating 2-4), and (3) attracted to same sex (Kinsey rating 5-6).

Parent report

The questionnaire for parents was only used when the adolescent refused to participate, and consisted of 9 questions assessing current gender dysphoric feelings in their son or daughter. With regard to sexual orientation, two questions assessed sexual attraction (To whom does your son or daughter feel attracted?) and sexual identity (How does your son or daughter identify him- or herself?). Both questions were classified following the same procedure as mentioned above.

Statistical analysis

The desister sub-groups (responders, reports from parents, and non-responders), were compared in demographics, development, childhood psychological functioning, the quality of peer relations and childhood gender dysphoria using non-parametric independent-samples Kruskal-Wallis Tests and Chi-square tests.

Logistic regression analyses examined bivariate and multivariate contributions of demographic and developmental variables, childhood psychological functioning, the quality of peer relations and childhood gender dysphoria on probability of persistence of gender dysphoria in adolescence.

Analysis of variance (ANOVA's), t-tests and Chi-square tests compared persisters and desisters on current reports of gender dysphoria, body image and sexual orientation.

Results

Combination of the response groups

For the three desister groups there were no significant differences observed between the responders, parents who responded and non-responders for the demographic background variables, except for childhood diagnosis, $\chi^2(2) = 6.90, p < .05$. The six adolescents for whom the parents responded were more likely to have a subthreshold diagnosis for GID, compared to the responders and non-responders. However, in their scores on the childhood measures for gender identity and gender dysphoria and psychological functioning the three groups were not significantly different. Given this information, the three groups were combined to one group of desisters for further analyses.

Predictors for persistence and desistence

Bivariate logistic regressions estimated the individual contribution of demographic and developmental characteristics, psychological functioning, the quality of peer relations and gender identity measures to examine which

variables predicted persistence of gender dysphoria (see Table 2). Overall, most demographic and developmental characteristics were not associated with persistence of gender dysphoria while all indicators of childhood gender dysphoria were. Age and natal sex were the only significant demographic predictors. Older children and girls were more likely to be persisters than younger children and boys. Gender relevant items from the CBCL (both parent and teacher report), childhood role transition, responses to the gender identity interview and questionnaire, and receipt of a GID diagnosis in childhood were all significant bivariate indicators of adolescent persistence of gender dysphoria.

Table 2 *Childhood predictors of persistence of gender dysphoria into adolescence*

Dependent variable: Persistence of gender dysphoria	Bivariate Odds Ratio (Confidence Interval)
Natal boy	.41 (.20-.87)*
Age at intake	1.37 (1.06-1.76)*
Two parents	2.27 (.96-5.37) n.s.
High socio-economic status	.30 (.18-1.69) n.s.
Medium socio-economic status	.55 (.55-3.04) n.s.
IQ	1.00 (.97-1.03) n.s.
Verbal IQ	1.00 (.97-1.02) n.s.
Performance IQ	.99 (.97-1.02) n.s.
Birth weight	1.00 (1.00-1.01) n.s.
Breastfeeding	1.00 (.97-1.03) n.s.
Pregnancy duration	1.06 (.90-1.25) n.s.
CBCL total problem	.99 (.97-1.01) n.s.
CBCL internalizing	.98 (.93-1.03) n.s.
CBCL externalizing	.98 (.94-1.03) n.s.
CBCL peer relations	.99 (.79-1.24) n.s.
CBCL gender	4.64 (2.28-9.44)***
CBCL item 5 – acts like other sex	37.56 (4.95-284.87)***
CBCL item 110 – wants to be other sex	5.13 (2.14-12.33)***
Teacher Report Form (TRF) total problem score	1.00 (.98-1.01) n.s.
TRF internalizing	.98 (.93-1.03) n.s.
TRF externalizing	1.01 (.97-1.06) n.s.
TRF peer relations	1.05 (.81-1.36) n.s.
TRF item – acts like other sex	1.74 (1.05-2.89)*
Childhood role transition	5.38 (2.36-12.27)***
Gender identity Disorder (GID) diagnosis	17.93 (5.14-62.55)***
Gender identity interview (GII) total	1.33 (1.19-1.49)***
GII cognitive items	1.95 (1.46-2.60)***
GII affective items	1.30 (1.15-1.47)***
Gender Identity Questionnaire (GIQ)	5.10 (2.03-12.79)***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

To examine the simultaneous contribution of multiple factors, multivariate logistic regressions were run for the combined sample and separately by natal sex, while controlling for age. Variables were retained in the multivariate model based on their unique contribution to explaining persistence of gender dysphoria. Some variables which were too highly correlated with other early gender dysphoria measures (e.g. whether or not a diagnosis was given) were not useful for the multivariate model and thus were dropped (see Table 3).

In the combined group, the following variables collectively accounted for 58% of the variability in the persistence of gender dysphoria: Age at intake, childhood role transition, and both cognitive and affective responses to the gender identity interview. Once these variables were accounted for, responses to the gender identity questionnaire did not predict additional variance in persistence. Cognitive responses to the gender identity interview were the strongest predictor, accounting for 11% of the unique variability in persistence of gender dysphoria.

Among natal males, 62% of the variability in the persistence of gender dysphoria was accounted for by age at intake, childhood role transition, the cognitive subscale of the gender identity interview and the total score of the gender identity questionnaire. Once these variables were accounted for, responses to the affective component of the gender identity interview did not predict additional variance in persistence. Childhood role transition accounted for the largest portion of unique variability (12%) while each of

Table 3 *Childhood predictors of persistence of gender dysphoria into adolescence using multivariate logistic regression*

Dependent variable: Persistence of gender dysphoria			
	Combined Sample Odds ratio (CI)	Natal boys Odds ratio (CI)	Natal girls Odds ratio (CI)
Age at intake	1.65 (1.12-2.44)**	1.90 (1.10-3.30)*	1.98 (.88-4.49) n.s.
Childhood role transition	5.06 (1.61-15.87)**	22.43 (2.69-187.07)**	1.85 (.27-12.87) n.s.
GII cognitive	1.68 (1.21-2.34)**	1.55 (1.06-2.28)*	2.04 (1.02-4.09)*
GII affective	1.19 (1.02-1.38)*	1.10 (.91-1.33) n.s.	1.47 (1.05-2.07)*
GIQ	2.47 (.75-8.16) n.s.	7.01 (1.17-42.01)*	.40 (.05-3.49) n.s.

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. CI - 95% confidence interval, GII- Gender identity interview, GIQ - Gender identity questionnaire.

the other significant predictors accounted for 6-7% of unique variability in persistence of gender dysphoria. To further examine the effect of early social role transitioning (before intake assessment) on later persistence in natal boys, we compared the boys who transitioned with boys who did not for their scores on the childhood measures of gender dysphoria (gender items CBCL and TRF, GIIC (total score, cognitive and affective), and GIQ). Boys who transitioned had significantly higher scores than those who had not transitioned for the two gender related CBCL items combined, ($M= 3.91$ vs. $M= 2.88$, respectively) $t(61.50) = -6.15, p < .001$, the cognitive scale of the GIIC, ($M= 2.64$ vs. $M= .95$, respectively) $t(74) = -2.74, p = .008$, and a borderline significance for the total score of the GIIC, ($M= 12.64$ vs. $M= 9.45$, respectively) $t(74) = -1.99, p = .051$, but not for the gender related TRF item, the affective scale of the GIIC and the GIQ.

For natal females, 62% of the variability in the persistence of gender dysphoria was accounted for by cognitive and affective responses to the gender identity interview. Once these variables were entered, none of the other predictors contributed unique variance to persistence. Cognitive and affective responses to the gender identity interview explained 15% each of the unique variability in persistence of gender dysphoria.

Adolescent reports

Gender identity and body image

Adolescent's current reports of gender dysphoria and body image were compared across persisters and desisters (see Table 4), showing that persisters reported more gender dysphoria than desisters in the mean total scores of both the GIAA and the UGDS. Clinically, for the GIAA scores lower than 3 indicate gender dysphoria (Singh et al. 2010; Singh et al. 2011); 87.2% of the persisters met the criterion compared to 0% of the desisters. For the UGDS, scores higher than 40.0 indicate gender dysphoria (Steensma et al. 2012b); 97.9% of the persisters met the criterion compared to 2.2% of the desisters (one bisexual, natal girl). As for body image, the persisters reported more body dissatisfaction for primary and secondary sex characteristics and neutral body characteristics, compared to the desisters. There were no main effects for sex or significant interactions between sex and persistence for gender dysphoria or body image.

Table 4 Mean scores on the gender identity measures and the Body Image Scale in adolescence

Natal sex	Persistence		Desistence		Boys (n=31) M (SD)	Girls (n=15) M (SD)	Persisters vs. Desisters ^b	p
	All (n=47) M (SD)	Boys (n=23) M (SD)	Girls (n=24) M (SD)	All (n=46) M (SD)				
<i>GI/AA</i>								
Total score	2.65 (.33)	2.62 (.34)	2.69 (.32)	4.33 (.35)	4.35 (.34)	4.28 (.39)	510.78	1, 89
<i>BIS</i> ^a								
Primary	3.84 (.66)	3.82 (.65)	3.86 (.68)	2.21 (.70)	2.14 (.66)	2.34 (.78)	117.09	1, 88
Secondary	2.79 (.64)	2.75 (.70)	2.82 (.59)	2.24 (.65)	2.24 (.67)	2.23 (.63)	15.43	1, 88
Neutral	2.56 (.62)	2.71 (.63)	2.42 (.59)	2.09 (.63)	2.05 (.61)	2.16 (.70)	11.53	1, 88
<i>UGDS-M</i>								
Total score	--	52.22 (5.54)	--	--	13.48 (3.11)	--	-30.18	32.18
<i>UGDS-F</i>								
Total score	--	--	53.79 (5.01)	--	--	23.00 (10.23)	-10.87	18.27

Note. *GI/AA* = Gender Identity Interview for Adolescents and Adults; *UGDS* = Utrecht Gender Dysphoria Scale; *BIS* = Body Image Scale, consisting of 3 subscale; primary sex characteristics, secondary sex characteristics, and neutral body characteristics; NS = not significant.

^a For 1 persister, a natal boy, the Body Image Scale was not available, N=46 for persisters and N=22 for persister boys.

^b For the *GI/AA* and *BIS* domains there were no significant differences between boys and girls, or an interaction for Status (Persistence/Desistence) x Sex

Table 5 Percentage of sexual orientation for desisters, persisters and combined

Group / Sexual domain	Attraction		Fantasy		Behavior		Sexual identity	
	boys	girls	boys	girls	boys	girls	boys	girls
<i>Desistence / natal sex</i>	n=29	n=14	n=29	n=11	n=22	n=9	n=31	n=15
Other sex	34.5%	85.7%	24.1%	81.8%	63.6%	100.0%	22.6%	80.0%
Both sexes	24.1%	7.1%	37.9%	18.2%	22.7%	0.0%	41.9%	20.0%
Same sex	41.4%	7.1%	37.9%	0.0%	13.6%	0.0%	35.5%	0.0%
<i>Persistence / natal sex</i>	boys	girls	boys	girls	boys	girls	boys	girls
	n=23	n=24	n=21	n=24	n=17	n=20	n=23	n=24
Other sex	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Both sexes	4.3%	4.2%	0.0%	4.2%	0.0%	0.0%	8.7%	4.2%
Same sex	95.7%	95.8%	100%	95.8%	100%	100%	91.3%	95.8%
<i>Combined / natal sex</i>	boys	girls	boys	girls	boys	girls	boys	girls
	n=52	n=38	n=50	n=35	n=39	n=29	n=54	n=39
Other sex	19.2%	31.6%	14.0%	25.7%	35.9%	31.0%	13.0%	30.8%
Both sexes	15.4%	5.2%	22.0%	8.6%	12.8%	0.0%	27.8%	10.2%
Same sex	65.4%	63.2%	64.0%	65.7%	51.3%	69.0%	59.3%	59.0%

Note. The domain sexual behavior was assessed by asking about kissing since we expected that many of the adolescents would not have had sexual intercourse.

Sexual orientation

Table 5 shows sexual orientation percentages (attraction, fantasy, behavior, identity) for persisters, desisters and the two groups combined. Persisters were more likely to report a sexual orientation towards their natal sex across each of the indicators of sexual orientation: Sexual attraction, $\chi^2(2) = 43.16$, $p < .001$, sexual fantasy, $\chi^2(2) = 45.95$, $p < .001$, sexual behavior, $\chi^2(2) = 56.81$, $p < .001$, and sexual identity, $\chi^2(2) = 47.69$, $p < .001$, compared to the desisters.

Among desisters, natal boys were more likely to report same sex attractions, $\chi^2(2) = 9.94$, $p < .05$, fantasies, $\chi^2(2) = 11.76$, $p < .05$, and identity, $\chi^2(2) = 16.26$, $p < .001$, but not behavior than natal girls. Within the group of persisters, there were no significant differences between natal boys and girls on any indicator of sexual orientation.

Discussion

The present study aimed to identify associated factors with the persistence and desistence of gender dysphoria into adolescence, and assess the current feelings of gender dysphoria, gender identity, body image and sexual orientation. Our findings regarding the current gender identity of the adolescents were in line with the earlier findings for persisters and desisters; the persisters reported higher intensities of gender dysphoria, more body dissatisfaction and higher reports of a same sex sexual orientation, compared to the desisters (e.g. Wallien and Cohen-Kettenis 2008). As for the factors associated with the persistence of gender dysphoria, we replicated the earlier findings on the link between the intensity of gender dysphoria in childhood and persistence of gender dysphoria (Wallien and Cohen-Kettenis 2008; Drummond et al. 2008; Singh 2012), showed that the chance to persist was greater in natal gender dysphoric girls than in boys (Wallien and Cohen-Kettenis 2008), and that psychological functioning and the quality of peer relations did not predict the persistence of childhood gender dysphoria (Singh 2012). In addition to this, we found that formerly non-significant (age at childhood assessment) and unstudied factors (cognitive and/or affective gender identity responses on the GIC and a social role transition) showed to be associated with the persistence of childhood gender dysphoria. Furthermore, our multivariate model revealed that the factors associated with the persistence of gender dysphoria were different between natal sexes.

While the purpose of this study was not to estimate rates of persistence, we did find that a higher proportion of referrals where the gender dysphoria

persisted into adolescence (37%) compared to prior studies (15.8 % on average) (see Steensma et al. 2011 for an overview of the studies). Additionally, because of the age limitation of at least age 15 by 2008 this sample represents the older spectrum among consecutive child referrals from 2000 to 2008. Given our findings, which showed that youth referred at older ages have a greater probability of persistence into adolescence, our 37% persistence rate may represent an overestimation of the actual persistence among consecutive referrals. Other reasons for the higher persistence rate may, at least in part, be due to changes in referral practices and social norms around both gender reassignment and gender nonconformity. Family physicians, pediatricians and child psychiatrists in the Netherlands may be more aware of the options for gender reassignment, and as such they may not refer less extreme gender dysphoric cases. Expanding acceptance of gender non-conformity may also result in less extreme cases of gender dysphoria not necessitating clinical assessment.

With regard to the predictive factors for persistence, we expected to observe differences between natal boys and girls. To date, several studies on gender dysphoric children showed that girls who are referred to gender identity services generally present more cross-gender behavior (e.g. Cohen-Kettenis et al. 2003; Cohen-Kettenis et al. 2006; Johnson et al. 2004; Wallien et al. 2009) and are generally older in age at the time of referral than boys (e.g. Cohen-Kettenis et al. 2003). Furthermore, visual inspection of the demographic characteristics of our own sample (Table 1) indeed indicates that girls had a higher age at referral, a greater percentage who fulfilled a childhood GID diagnosis, and a partial transitioning in the majority of girls (irrespective of a later persistence or desistence) at the time of referral, compared to boys. It seems therefore conceivable that the differences in childhood presentation of gender dysphoric boys and girls resulted in different factors being associated with persistence of gender dysphoria, which may have implications for a different approach in the clinical management of gender dysphoric boys and girls. For natal boys, cross-gender behaviors, their gender role presentation and parent reports on the intensity of gender role behaviors provide important indicators of the child's desires and future development. However, because the role of parental report on cross-gender behaviors and surface behaviors such as gender role transitioning are of less value in predicting a future persistence of gender dysphoria in gender dysphoric girls, it seems important to provide extra focus on girls' own experiences of cross-gender identification and wishes.

Although the relative value of the factors associated with the persistence of childhood gender dysphoria differed between the natal boys and girls, a central and shared predictor for persistence for both boys and girls in our

model included the cognitive responses to the GIC. (Zucker et al. 1993a). When asked with what sex they identified (are you a boy or a girl?), children who expressed a cross-gender identification showed to have a greater chance of persisting gender dysphoria. This seems to be in concordance with the underlying motives reported by the persisters and desisters in the qualitative study by Steensma et al. (2011). Persisters indicated that they felt they *were* the “other” sex and the desisters indicated they *wished* they were the “other” sex, this difference may also underlie our finding of a higher report of cognitive cross-gender identification in the persisters than in the desisters. Either they experienced an alternative gender identification or they interpreted the question differently. Nevertheless, explicitly asking gender dysphoric children with which sex they identify seems to be of great value in predicting a future outcome for both gender dysphoric boys and girls.

One other predictive factor of importance for the persistence of gender dysphoria, especially in boys, showed to be, at least partially, a childhood social transition to the preferred gender role. Although transitioned boys reported more gender dysphoria and cross-gender behaviors, which could indicate that transitioning is an indicator of the intensity of gender dysphoria, one may wonder whether a childhood transition has an effect by itself and influences the cognitive gender identity representation of the child and/or their future development. In this respect, the observed increase over the years in children who attend to our service having already gone through a social transition is of interest. As we previously indicated, the percentage of transitioned children is increasing and seems to exceed the percentages known from prior literature for the persistence of gender dysphoria (Steensma and Cohen-Kettenis 2011). As a consequence, this trend will either result in a larger proportion of children who have to change back to their original gender role, because of desisting gender dysphoria, accompanied with a possible struggle (Steensma et al. 2011), or it may, with the hypothesized link between social transitioning and the cognitive representation of the self, influence the future rates of persistence. Alternatively, higher rates of social transition could represent greater social acceptance of role transition as a response to gender dysphoria, and consequently shifting trends in persistence. Future prospective follow-up studies on gender dysphoric children, where cognitive markers and specific indicators of social transitioning are incorporated, may shed more light on this question. Until there is more knowledge about this mechanism, the proposed approach in the clinical management of gender dysphoric children regarding social transitioning in the Standards of Care of the World Professional Association for Transgender Health (WPATH) seems to be best fitting: ‘...*Mental health professionals can help families to make decisions regarding the timing and*

process of any gender role changes for their young children. They should provide information and help parents to weigh the potential benefits and challenges of particular choices...' (Coleman et al. 2012).

In conclusion, factors associated with persistence appear to vary among natal boys and girls, and may be indicated by intensity of early gender dysphoria, and may seem clinically significant at different ages for boys and girls, but are not associated with psychological health or early background and developmental factors such as family structure, infant development and indicators of psychological functioning. Additionally the ways in which early gender dysphoria is managed in the family may be associated with individuals' cognitive representation of their own gender. Finally, clinical recommendations for the support of gender dysphoric children may need to be developed independently for natal boys and for girls, as the presentation of gender dysphoric boys and girls is different and different factors are predictive for the persistence of gender dysphoria.